

THE COWPEA BRUCHID (COLEOPTERA) UNDER ANOTHER  
NAME—A PLEA FOR ONE KIND OF ENTOMOLOGICAL  
SPECIALIST.

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In checking over the recent bibliography of the Bruchidae, this note was encountered in the Review of Applied Entomology, Series A, Vol. 7, p. 236, 1919: "A Bruchid, *Bruchus (Acanthoscelides) trabuti* is described occurring in the seeds of *Vigna sinensis* (cowpea) from Timbuctoo." Being interested in new Bruchidae from the cowpea and somewhat suspicious of them, though the U. S. National Museum Collection contains two which are at least unrecorded, the paper referred to by M. H. Caillol (Bull. Soc. Ent. France 1919) was examined and in it was found a careful and accurate description of the cowpea bruchid or so-called "four-spotted bean weevil." I speak of it thus so it may be recognized, for its nomenclatorial history suggests the Woman at the Well and the husbands she had had and him she then had who was not her husband. Names it has had but the one it now has is not legitimately its own.

It came to me with a shock that in 1919, one of the earliest described and best known of economic Bruchidae could be described as new in a genus not its own, by a competent entomologist, in a periodical published by the oldest entomological society in the world. It seemed incredible that it could be reviewed in such a journal as this, conducted by one of the ablest coleopterists working to-day and the fact escape notice not only then but during the ten years which have since elapsed,—yet this is what has happened.

How can this be? This can be answered but not in a word. The last general revision of the Bruchidae of the world was published by Schoenherr in 1833 and expanded by the addition of many species in 1839. Since then have appeared regional reviews of European species, by Allard using the names *Bruchus* and Bruchidae, by Baudi with *Mylabris* and Mylabridae, by Schilsky reverting to *Bruchus* and Bruchidae, local European treatment by Bedel and Reitter have *Laria* and Lariidae. Dr. Sharp and Horn and Fall in treating American species, all have used *Bruchus* and Bruchidae while Leng's Catalogue turns to *Mylabris* and Mylabridae; while the Pic catalogue of the species of the world holds to *Bruchus* and Bruchidae. But these nomenclatorial vicissitudes have been shared by all the Bruchids and the mere shifting of names should not have obscured such a species.

The cowpea bruchid has had an undue amount of confusion about it and its nomenclatorial tangle has so far baffled every student who has treated it so that when one begins to feel sure of his own decision regarding its proper technical

name, modesty is likely to suggest caution in making positive assertions. For more than ten years the writer has been working on this group and for more than five of these he has been of the opinion that the technical name for this species should be *Callosobruchus maculatus* (Fabricius).

Fabricius 1775, Ent. Syst. 65, described *Bruchus maculatus* and in 1792, Syst. Ent. (1) 2: 371, *Bruchus 4-maculatus*. Fahraeus 1839 in Schoenherr Gen. Curc. 5:11, after examining the Fabrician types, considered them the same species but unfortunately continued to use the later, more cumbersome and less accurate name, in which he has been followed by other authors down to the present day. I know of no reason to doubt the soundness of his judgment of their specific identity, since no one since has had sounder knowledge of the Bruchidae than Schoenherr's three associates, Boheman, Gyllenhal, and Fahraeus who did the descriptive work on the Bruchidae in the Genera Curculionidum. We should then, it seems, use the first valid specific name applied to the cowpea bruchid, and that is *maculatus* of Fabricius 1775.

For the generic name, shall we use *Bruchus*, *Mylabris*, *Laria*, *Acanthoecelides* or *Pachymerus*? In my judgment none of these, which have been used, but *Callosobruchus*, which has not been used. Pic in 1902, describing some Bruchidae allied to *Bruchus chinensis* (Linnaeus) proposed for them and for *Chinensis* the subgenus *Callosobruchus*, but did not then nor since elaborate a description which would make *maculatus* congeneric with *chinensis* as I believe it to be. *Callosobruchus* as I understand it is a valid genus of the *Bruchinae* with the pronotum conical, its sides straight or a little concave, the pronotal margin obscured or absent, the pygidium oblique in the ♀, subvertical in the ♂, the hind femur flattened beneath and longitudinally bicarinate, each carina bearing a tooth near apex, the outer triangular, the inner more acute. The species are strongly sexually dimorphic and in some of them, such as *chinensis*, the ♂ antennae are strongly serrate, often being termed pectinate, while in *maculatus* the joints of the ♂ antennae are slender and subserrate. In form the species may be short and compact, even more so than *chinensis*, or more elongate, as in *maculatus*. Pic emphasizes the callous on the median lobe of the pronotum of *chinensis* which is present in a more or less developed condition in the species but is not diagnostic of the genus. Pic indicates in 1912, that he considers *chinensis* (Linnaeus) as the type but does not quite designate it as such. It is included in the original reference under the synonym *scutellaris* (Fabricius). Accordingly, in order to put the matter in definite form, *Bruchus scutellaris* (Fabricius) = *Curculio chinensis* Linnaeus 1758, is hereby designated as the genotype of *Callosobruchus* Pic. 1902.

*Pachymerus* has been used for our species by various authors but here there is no possibility of doubt. We have unfortunately two genera called *Pachymerus* among the Bruchidae, to say nothing of the genera of the same name in Ichneumonidae, Scarabaeidae, and Lygaeidae. The first of these genera to be established (Thunberg 1805) has for its type *Bruchus bactris* (Linnaeus) bred by Jacquin from the seeds of a palm of the genus *Bactris* and about as different from *maculatus* as any member of the family. But were this not the case and we were free to use the Schoenherrian *Pachymerus* our species is certainly not congeneric with *Bruchus brasiliensis* Thunberg, fixed by Schoenherr as the genotype. It can only have been placed there in the belief that *Pachymerus* should serve as a convenient resting place for Bruchidae with spinose femora regardless of cephalic, thoracic, antennal and other characters or of any similarity or difference of femoral structure even. While *brasiliensis* and *maculatus* may perhaps fall into the same subfamily, *Pseudopachymerus* Pic, which takes the place of *Pachymerus* Schoenherr, and *Callosobruchus* are quite as unlike as any two genera of the *Bruchinae*. The former is naturally confined to the New World and the latter was peculiar to the Old, until the accidents of commerce permitted three of its species to follow their host plants to the New World. *Laria*, *Mylabris*, and *Bruchus* are here excluded from consideration since they are synonyms for a genus differing in thoracic, secondary sexual and other characters and if my judgment is sound, worthy of being held distinct.

But my apology for M. Caillol and the others who contributed in continuing the error into which he has fallen is not complete. Doubtless he felt it hopeless to determine whether his species might have been described under *maculatus* or *quadrimaculatus*, or under *ornatus*, or *sinuatus*, or *ambiguus*, or *barbicornis*, or *bistriatus* which have been supposed to fall into this synonymy, or under other names not yet suspected. He doubtless felt that with the present imperfect descriptions he could not determine his insect and to give Dr. Trabut a name for his economic insect he proceeded to describe it as new. Still why should he place it in *Acanthoscelides*?

Here the answer, again, can not be in a word. Herr Schilsky in elaborating the European Bruchidae, like most other workers in the group, felt the need for more genera and transferred a majority of the species into *Bruchidius*, and after separating these from *Bruchus* and removing as many as he could to previously described genera, established a convenience genus *Acanthoscelides* for certain other species of exotic origin established in Europe, naturally without recognizing any very good limits for it. Had he had a large familiarity with the Bruchid fauna of the world such as he had of Europe, doubtless

he would have realized that *Bruchus oblectus* Say 1831 (inadvertently treated under the later name *irresectus* Fahraeus 1839) would fall into a large American genus for which it would serve admirably as genotype. Since he did not and his genus still remains without a designated genotype, we may here attend to that most necessary formality. *Bruchus irresectus* Fahraeus 1839, is hereby designated as genotype of *Acanthoscelides* Schilsky. Basing the genus upon this type we find it the largest genus of American Bruchidae. The species have the pronotum conical with the surface even, the sides as seen from above straight or convex, the lateral margins rudimentary, not attaining the anterior margin; the front carinate; the hind femur feebly channeled beneath, longitudinally bicarinate and the inner carina with a strong tooth and beyond the tooth one, most often two, but exceptionally even three or four denticles; the abdomen with the intermediate sternites abbreviated and the pygidium oblique, often subvertical. Had the genus been described thus, M. Caillol would not have referred his species to *Acanthoscelides*. Since neither genus had been adequately described, M. Caillol's reference might well have been made by any coleopterist except those who would revert to the classification and place all Bruchidae in one or other of two genera.

Since 1920 it has been my fortune to examine the literature of the Bruchid genera and I feel quite safe in saying that of the 25, more or less, groups in the family of generic or near-generic rank proposed in the family, not one has been described so as to permit the common or ordinary coleopterist to include in it the species belonging to it and to exclude from it the species which do not, excepting only *Bruchus* as restricted by Schilsky.

Had the condition of the literature permitted M. Caillol to refer the material submitted to him by Dr. Trabut to its species he might have at once directed him to the rich biological and economic literature which records our knowledge of the Cowpea Bruchid (*Callosobruchus maculatus* (Fabricius 1775)).

It would be easy to duplicate this picture of confusion of nomenclature and the resulting disorder and delay in economic work in other groups. My purpose in this is to illustrate the necessity for a certain type of entomological specialist nowhere now supported officially and given freedom to work as any miner or creative artist or naturalist must work—as *the ore leads*.

The Bruchidae may serve as well as any other group to illustrate this need. Personal familiarity with this family calls up a multitude of instances which might be brought out to support my conviction that such specialists must be developed, supported, and used for the good of economic work.

Twelve species of Bruchidae have become established in the Hawaiian Islands, four of them having apparently arrived

since my work upon them began there in 1918. Of these, four are of Old World origin and eight came from the warmer parts of America. All but one have considerable economic importance and have some economic literature concerning them. Two species are still undescribed but one of these has been discussed under a name based on a misidentification and all the economic literature of significance under this name (*Bruchus prosopis*) refers to this undescribed species. Of these Hawaiian immigrant Bruchidae, two have been referred to the genus in which I should place them. I should refer these twelve species to seven genera, for four of these genera available names are found in literature, while three of them require new names. Six of these species seem to be usually referred to by species names which are not those by which they should be known while five seem to be called by names properly their own. Not one seems legitimately referred to the genus under which it has been usually placed and every one excepting one of the two undescribed species is involved in nomenclatorial confusion such that the literature can not be read until unpublished corrections are recorded without erroneous ideas being communicated.

No one but a specialist in the study of the Bruchidae of the world can possibly handle intelligently the questions involved in the names, the habits, and their economics, and no specialist in Bruchidae is employed in the whole world, unless one man is so classed and his official duties are confined to the economics of two species.

Instances might be multiplied to weariness of Bruchidae attacking economic plants in all corners of the earth, awaiting the accidents of commerce to spread elsewhere, undescribed, or their habits unknown, or in nomenclatorial confusion, so that one species seems to be two or two to be one, of which we should know and let others know.

Such tasks as are thus suggested may be done only by one type of entomological specialist and it is hoped what is here written may further the development and support of such specialists. The tasks to be done by a specialist in Bruchidae are such as other specialists of the same type must do and an outline of some of them seems pertinent here.

Some eight hundred names have been given to Bruchidae and the habits of perhaps a hundred are known at least partially but no great advance in biology or economics are to be looked for until certain foundation work in taxonomy is done. Among the tasks which need doing are these:

Stabilization of the nomenclature, determining which generic name should be used for the type genus of the family.

Preparation of a catalogue of the binomial names established

in the family, so coleopterists may determine if a name used or desired to be used is available or not. At present, no one can determine from any existing catalogue or by any reasonable amount of research whether a proposed binomial may or may not be used. Eleven of our 91 valid described species have recently been changed because of imperfect catalogue work in the past or now require changing.

Description of fifty genera, more or less, necessary in the Bruchidae to reduce the work of specific description and to clarify our ideas of distribution.

Establishment of a general knowledge among coleopterists of the characters by which Bruchid genera and species may be distinguished. To be secured by publishing properly described and figured Bruchid species and genera.

Criticism of published Bruchid host-plant records, classifying them as erroneous, doubtful and certain.

Distribution into as many centers of entomological work as possible, extensive collections of authentically named Bruchidae from all parts of the world so that local workers may have a basis for their work safer than that formed by descriptions.

These tasks completed as they may be in a very few years by a properly supported and assisted specialist, future work in the family would be carried on by local workers and we might hope soon to know the Bruchid enemies we shall need to fight and how to fight them and if, as may be the case, there are Bruchid friends which will help us in fighting plant enemies.

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